Hickory Creek near Brownstown, IL

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Hickory Creek near Brownstown
RS = 2 DSSB, USGS survey,LB/RB topomap extention

Hickory Creek near Brownstown
RS = 1 DS from bridge, USGS survey, LB/RB topomap extention

Hickory Creek near Brownstown
RS = 3 US from bridge, USGS survey, RB topomap extention
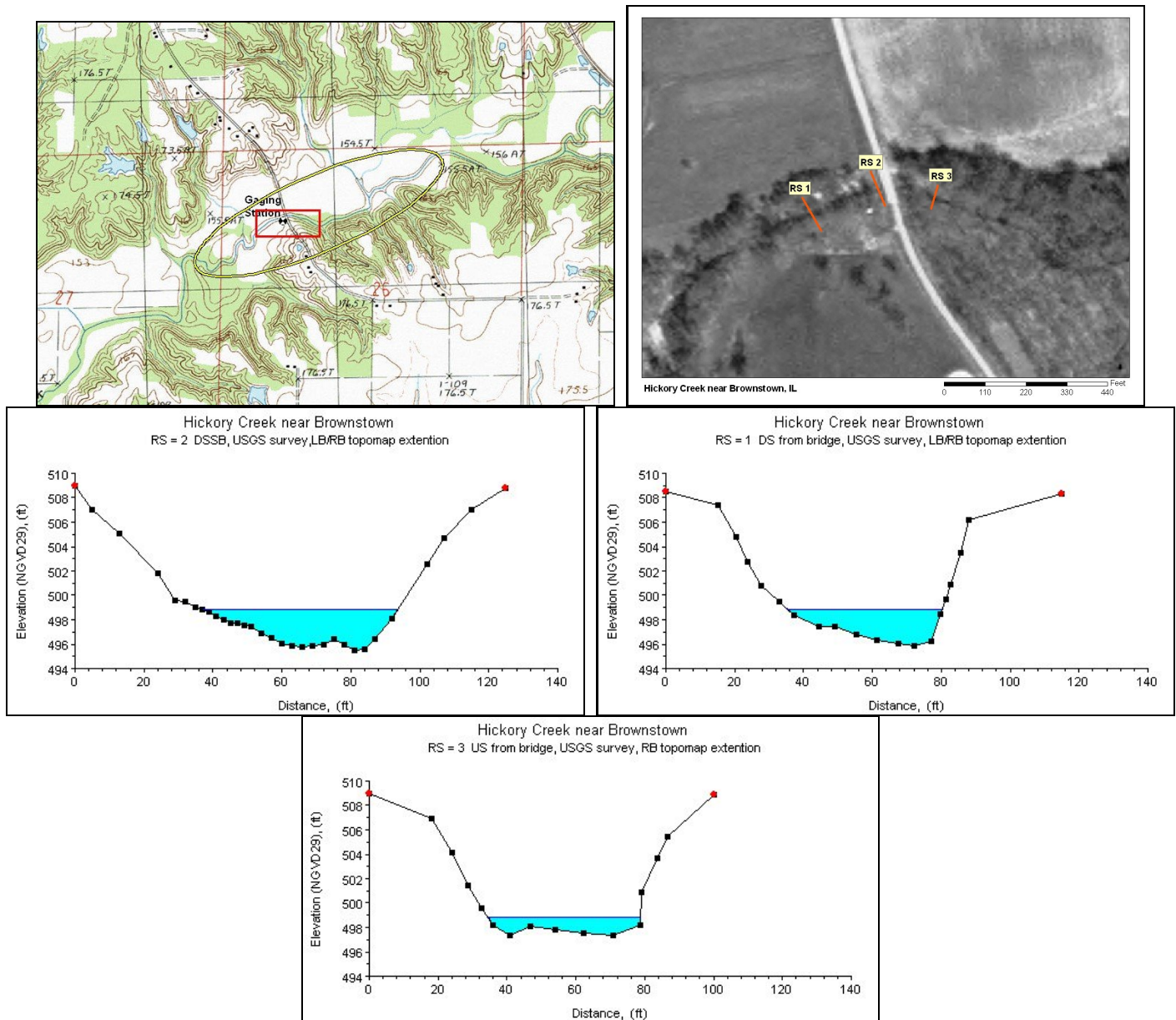
Study Reach.--The channel under consideration is natural and meandering in a rural area. The study reach, 300 ft long, is slightly off center of the county bridge, as shown in the quadrangle map on the top left. There are three cross sections (surveyed by the U.S. Geological Survey in March 2000) available for describing geometric characteristics in the study reach (see plots above). The channel alignment, approximate channel width and bank conditions, and locations of channel cross sections are presented in the aerial photo on the top right.
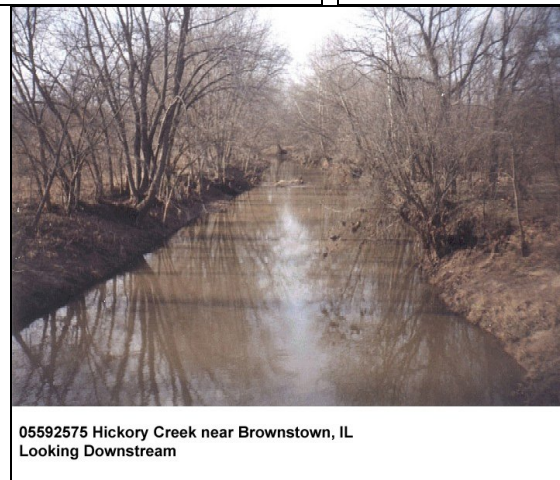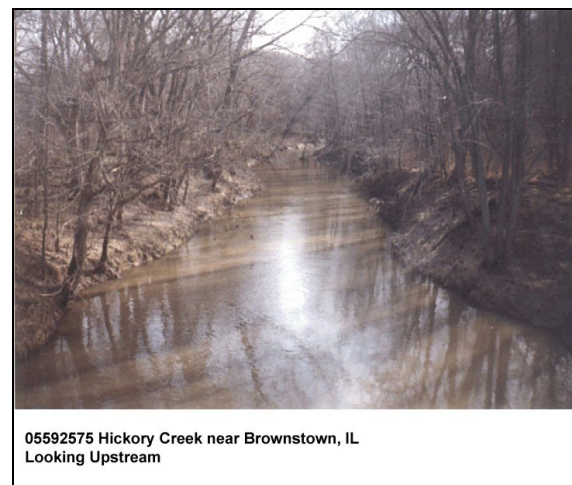
Gage Location.--Lat 38°56'12", long 88°57'10", in NW1/4 NW1/4 sec.26, T.5N.,R.2E., Fayette County, Hydrologic Unit 07140202, on left bank at downstream side of county bridge, about 4 mi south of Brownstown, 4.3 mi above Little Hickory Creek, and at river mi 12.0. The USGS streamgage-station number is 05592575.

Drainage Area.--44.2 sq mi.

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Gage Datum and Elevations of Reference Points.--Datum of gage is 493.37 ft. A wire-weight gage attached to downstream handrail of the bridge on County Road 1575. A reference point for the n-value study, (RP-N5) is a nail in overhanging tree about 150 ft upstream from the bridge on the left bank; elevation = 502.95 ft. All elevations are in NGVD 1929 convention.

Stage, Discharge Measurements, and Computed n-Values.--Water-surface elevations were measured by tape down at RP-N5 and by reading the WWG at the county bridge before and after the discharge measurements. In addition, a series of high water marks were obtained along the study reach. Corresponding water-surface slope was determined by dividing the water-surface elevations by the distances between pairs of high water marks and/or the reference point. Discharge measurements were made with conventional current-meter method. The computed n-values are listed in the following table. Whenever possible, the computed n-values are associated with a photo taken at the time of the measurement. The photos are arranged from low stage to high stage in order to illustrate contributing factors of n-value at a particular stage.

Date of Observation	Discharge (ft³/s)	Average Cross Section Area (ft²)	Hydraulic Radius (ft)	Mean Velocity (ft/s)	Slope	Coefficient of Roughness *n*
1/25/1999	77.6	84.4	1.67	1.05	0.000022	0.028
1/22/1999	2980.0	764.1	6.74	4.03	0.002254	0.061

05592575 Hickory Creek near Brownstown, IL
Low flow, control   09/08/04

05592575 Hickory Creek near Brownstown, IL
Looking Upstream

05592575 Hickory Creek near Brownstown, IL
Looking Downstream

Description of Channel.--This channel is a natural channel. The study reach is located in a meandering section. The bed material consists of medium sized gravels. Channel cross section can be described as trapezoidal. The width of the

channel bottom is approximately 40 ft and approximately 80 ft at the top of the bank. Bank height is approximately 10 ft. Both bank faces are lined with grass and trees grow on top of the banks. Beyond the initial line of trees, the vegetation becomes less dense on the floodplain.

Floods.--Flood of May 13, 2002, reached a stage of 16.73 ft; discharge of 6,850 ft^3/s.

Estimated n-Values using Cowan s Approach.--0.038 ~ 0.055